



# REVEALING THE STRUCTURE OF SNAYU BASED ON CADAVERIC STUDY

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## ABSTRACT

In the present competitive era, globalization and fast life the disease affecting the *snayu* (subsidiary body elements) are increasing, and this is becoming a challenge to the health professionals. *Snayu* is a term which is explained elaborately in classical texts but yet it is unable to point out exact structure related with it in human body. It is explained as a structure which helps in binding the joints and helps the body in weight bearing. One who has proper knowledge of *Snayu* can easily extract hidden *Shalya* from the body. According to location, form and structure, *Snayu* are of kind four types *Pratanavati* (branched), *Vrutta* (circular), *Sushira* (porous), *Pruthul* (flat), ligaments, tendons and fasciae are all made up of connective tissues. They are histologically similar in structure and they differ in the way they connect structures, aim of the article is to analyse the specific structure of *Snayu* and its type with modern science on the basis of cadaveric study.

**KEY WORDS:** *Snayu*, *Pratanavati*, Ligament, Tendon, histology.

## INTRODUCTION:

*Snayu* is a term which is explained elaborately in classical texts but yet it is unable to point out exact structure related with it in human body. Literally the term *Snayu* means to bind. It is explained as a structure which helps in binding the joints and helps the body in weight bearing. Structurally it has been described something similar to a fibrous in nature.

*Snayu* is said to be originated from *Medas* along with *Sira*. *Snayu* by *Khara Paka* and *Sira* by *Mrdu paka*. *Susruta* while emphasizing its importance have mentioned that an injury to *Snayu* will cause more harm to human body than caused by *Asthi*, *Peshi*, *Sira* and *Sandhi*.<sup>2</sup>

One who has proper knowledge of *Snayu* can easily extract hidden *Shalya* from the body.<sup>3</sup> Clinically *Snayu* is important as it is mentioned in *Vatavyadhi* in the pathogenesis of diseases like *Akshepa Vata*.<sup>4</sup>

*Snayu* hold the *Sharir* together by joining the bones at joints like the ropes hold the wooden planks of a boat together. Like a strong boat can carry heavy load, *Snayu* enables body for weight bearing.<sup>5</sup>

Ligaments, tendons and fasciae are all made up of connective tissues. They are histologically similar in structure and they differ in the way they connect structures.

## AIM & OBJECTIVE:

An attempt has been made to critically analyses the specific structure of *Snayu* and its type with modern science on the basis of cadaveric study.

## REVIEW OF LITERATURE:

According to SMW English Sanskrit dictionary *Snayu* means - A cord to some to fr. A/sha contracted from sina, pres base of /si 'to bind' cf. also /snai any sinew or ligament in the human and animal body. Tendon, muscle, nerve, vein.<sup>6</sup>

In *Amarakosha*, it is mentioned that *Snayu* holds the joints together in *Anga* and *Pratyanga*. It also mentions *Snayu* as a structure which covers body structures.<sup>7</sup>

According to *Shargandhara* *Snayu* is a structure which binds *Mamsa*, *Asthi* and *Medas* of the body.<sup>8</sup>

According to location, form and structure, *Snayu* is of kind four types *Pratanavati* (branched), *Vrutta* (circular), *Sushira* (porous), *Pruthul* (flat). *Pratanavati* (spread out/ broad) are present in *Shakha* (extremities) and *Sarva Sandhi*. *Vrutta* (round/ cylindrical) is known as *Kandara*.<sup>9</sup>

*Sushira* (hollow/ ring like) are present at the end of *Amasaya* (stomach), *Pakvasaya* (large intestine), *Basti* (urinary bladder). *Pruthula* (thick bag) are present in *Parsva* (flanks), *uras* (chest), and *prutha* (back).<sup>9</sup>

*Snayu* are nine hundred, six hundred in *Shakha* and two hundred and thirty in *Antradi* and seventy in *Sira* (head) and *Greeva* (neck).<sup>10</sup>

## MATERIAL AND METHOD:

- Review of *Ayurvedic* literature regarding to *Snayu*, and its type from classics and relevant commentaries.
- Review of relevant modern literature regarding to related structure of *Snayu*.
- To observe and reveal the structure of *Snayu* and its type, on cadaver through dissection.
- Four type of *Pramana Pariksha* like *Aptoupdesh*, *Pratakashya*, *Anumaan* and *Yukti*. *Pratakashya Pariksha* is more important other than of four type of *Pramana Pariksha*, The structure of *Snayu* and its type understood very difficult without dissection. So the perfect knowledge about the *Snayu* gains through the cadaveric study. Dissection on cadaver carried out in the Dept. of *Sharir Rachana* NIA Jaipur.

## OBJECT OF DISSECTION:

Identification of the specific structure as *Snayu* based cadaveric dissection and reveals the structure of *Snayu* and its types.

## METHOD:

It's really difficult in current scenario to identify and establish the structure of *Snayu* mentioned by *Acharya Susrutha*. This can be only made possible through a cadaveric study. This study is planned to explore the extremities of human body by region wise and observing the structures which we can consider as *Snayu*. This is done by studying them structurally and functionally. The structure should be having a binding property and should be fibrous structurally. The various structures observe through the cadaveric study and compare with related literature of *Snayu* and its type.

## DISCUSSION:

*Acharya Dalhana* mentions *Snayu* as a *Shanakara* (fibrous structure) which is used in bow.

In *Amarakosha*, it is mentioned that *Snayu* holds the joints together in *Anga* and *Pratyanga*. It also mentions *Snayu* as a structure which covers body structures.

The term *Snayu* literally means to bind. It is also explained as a tendon, ligament or tubular vessel attached to bone at either end. It's also mentioned as a cord, sinew, ligament in the human or animal body.

*Snayu* is classified into four subcategories. These are

1. *Pratanavati*
2. *Vrutta*
3. *Pruthul*
4. *Sushira*

***Pratanavati Snayu:*** *Pratanavati* means a tendril, a shoot, a low spreading plant, a spreading creeper and branching out. These are said to be present in *Shakha* and

all *Sandhi*. So *Pratanavati* type of *Snayu* should be.

- Present in all joints of body and extremities.
- And they should be having branching pattern and like a *creeper*.

So the structures which resembles *Pratanavati Snayu* are:

- **Ligaments**- As these are present in all joints.
- **Nerves**- As these are like creepers and have branching pattern. While dissection the nerves were seen as whitish in appearance and this resembles to the definition

Given by *Acharya Dalhan* as *Shanakara*. Since nerve has not been clearly described in Ayurveda text, and cannot be included in any other categories mentioned by *Acharya Susruta*, it has been included under *Pratanavati Snayu*.

#### **Vrutta Snayu:**

*Vrutta* means round or circular. These are cord like structures present in the body. *Acharya Susruta* also calls *Vrutta Snayu* as *Kandara*. *Kandara* is called *Mahasnayu* or *Mahanadi*. It is a cord like structure which is similar to *Snayu* but large in size. So *Kandara* should be.

- Large circular or cord like structure

So in human the structures resembling *Kandara* or *Vrutta Snayu* are:

- **Tendons**- As these are cord like
- **Large Nerves cords**- These are also cord like and resemble tendon.

#### **Pruthul Snayu:**

The word meaning of *Pruthul* is a broad, large or great. So these should be structures which are:

- Large, broad and flat.

The structures which resemble *Pruthul Snayu* in our body are:

- **Aponeurosis**
- **Fascia**

#### **Sushira Snayu:**

*Sushira* means porous, hollow, cavity etc. *Acharya Susruta* explains that *Sushira Snayu* is present in the end part of regions like *Amashaya*, *Pakvashaya*, *Vasthi* etc. So these are structures which are porous like in nature and also present in the openings of hollow organs. So the structures which resemble *Sushira Snayu* are:

- Sphincters

In the extremities only *Pratanavati*, *Vrutta* and *Pruthul Snayu* were found. These structures are enumerated in table according to regions

**Table no. 1**

Serial No.	Type of Snayu	Meaning	Structure
1.	<i>Pratanavati</i>	a tendril, a shoot, a low spreading plant	Ligaments, nerves
2.	<i>Vrutta</i>	Round or circular	Tendon, large nerve cord
3.	<i>Pruthul</i>	Broad, large or great	Fascia, aponeurosis
4.	<i>Sushira</i>	Porus, hollow, cavity	sphincters

#### **CONCLUSION:**

- The structures which can be considered as *Snayu* in human body are ligaments, nerves, tendons, fascia and sphincters.
- *Pratanavati Snayu* can be considered as ligament and nerves in extremities.
- *Vrutta Snayu* can be considered as tendons and large nerve cords.
- *Pruthul Snayu* can be considered as Aponeurosis and fascia.
- *Sushira snayu* consider as sphincters present in end part of stomach, anus, etc.

#### **REFERENCES:**

- I. Acharya JT. Susrutha Samhita with Nibandhasangraha commentary of Dalhanacharya. Varanasi:chaukambha Sanskrit sansthan; 2014. P 357.
- II. Acharya JT. Susrutha Samhita with Nibandhasangraha commentary of Dalhanacharya. Varanasi:chaukambha Sanskrit sansthan; 2014. P 367.

- III. Acharya JT. Susrutha Samhita with Nibandhasangraha commentary of Dalhanacharya. Varanasi:chaukambha Sanskrit sansthan; 2014. P 367.
- IV. Acharya JT. Susrutha Samhita with Nibandhasangraha commentary of Dalhanacharya. Varanasi:chaukambha Sanskrit sansthan; 2014. P 261.
- V. Acharya JT. Susrutha Samhita with Nibandhasangraha commentary of Dalhanacharya. Varanasi:chaukambha Sanskrit sansthan; 2014. P 367.
- VI. Monier-Williams. A Sanskrit- English Dictionary. 16th edition .Delhi: Motilal Banarsidas Publishers Private Limited; Reprint 2011. P 1267.
- VII. Mishra Satyendra, Amarakosa of amarasimha with krsnamitra's commentary in Sanskrit vaikkunthi commentary in hindi and annotation of words in English. Jaipur: jagdish Sanskrit pustakalaya; reprint 2012.
- VIII. Jha C.B. Jha Sarangdhara Sahita with the Adhamalla's Dipika and kasirama's Gudhartha dipika, Varanasi: Chaukhamba surbharti Prakashan; 2013. P 52
- IX. Acharya JT. Susrutha Samhita with Nibandhasangraha commentary of Dalhanacharya. Varanasi:chaukambha Sanskrit sansthan; 2014. P 367.
- X. Acharya JT. Susrutha Samhita with Nibandhasangraha commentary of Dalhanacharya. Varanasi:chaukambha Sanskrit sansthan; 2014. P 367.